

The Claims:

This listing of claims will replace all prior versions, and lists, of claims in the application:

1-17. (Cancelled)

18. (Previously presented) The transseptal apparatus of claim 21, wherein the catheter further comprises

first and second electrical leads in electrical communication with the first and second electrodes, and

first and second cables at the proximate end of the catheter,

wherein the first and second cables are in electrical communication with the first and second electrical leads and are configured to be attached to the recording device.

19-20. (Cancelled)

21. (Previously presented) A transseptal apparatus for locating the fossa ovalis in a patient and performing a transseptal puncture of the fossa ovalis, comprising:

(a) a hollow sheath having a distal end;

(b) a transseptal needle;

(c) a catheter for use in transseptal punctures, comprising:

(i) a hollow lumen;

(ii) a first electrode positioned at the distal end of the catheter; and

(iii) a second electrode positioned on the catheter and spaced proximally from the first electrode, wherein the first and second electrodes are sensors of electrophysical activity of an interatrial septum, and

wherein the catheter is configured to be inserted into the hollow sheath for transseptal puncture and to receive the transseptal needle urged through the lumen until a tip of

the needle protrudes beyond the distal end of the catheter and wherein the catheter removably contacts the hollow sheath,

wherein the catheter is configured such that the distal end of the catheter serves as both an electrophysiology mapping catheter for locating the fossa ovalis and a dilator suitable for penetrating the fossa ovalis during a transseptal puncture procedure by urging the catheter over the transseptal needle positioned within the lumen of the catheter; and

- (d) a recording device for the generation and recording of unipolar and bipolar electrograms, the recording device in electrical communication with the electrodes of the catheter, wherein the recording device generates the unipolar electrograms from the electrophysical activity of the interatrial septum sensed by the first electrode and the bipolar electrograms from the electrophysical activity of the interatrial septum sensed by both the first electrode and the second electrode.

22-35. (Cancelled)

36. (Previously presented) A transseptal apparatus for locating the fossa ovalis in a patient and performing a transseptal puncture of the fossa ovalis, comprising:

- (a) a hollow sheath having a distal end;
- (b) a transseptal needle
- (c) a catheter for use in transseptal punctures, comprising:
 - (i) a hollow lumen;
 - (ii) a first electrode positioned at the distal end of the catheter; and
 - (iii) a second electrode positioned on the catheter and spaced proximally from the first electrode,

wherein the catheter is configured to be inserted into the hollow sheath for transseptal puncture and to receive the transseptal needle urged through the lumen until a tip of the needle protrudes beyond the distal end of the catheter and wherein the catheter removably contacts the hollow sheath,

wherein the catheter is configured such that the distal end of the catheter serves as both an electrophysiology mapping catheter for locating the fossa ovalis and a dilator suitable for penetrating the fossa ovalis during a transseptal puncture procedure by urging the catheter over the transseptal needle positioned within the lumen of the catheter

wherein the first and the second electrode are each configured to concurrently obtain both unipolar and bipolar measurements to provide for the electrophysiology mapping;

wherein the catheter is configured such that the transseptal needle may be urged through the lumen tip of the needle protrudes beyond the distal end of the catheter;

(d) a location signal generator for providing a location signal to at least one of the electrodes in order to locate the fossa ovalis; and

(e) a recording device for the generation and recording of electrograms, the recording device in electrical communication with the electrodes; and

further wherein the transseptal apparatus is configured such that a user may identify the fossa ovalis of patient on the basis of at least one of the following parameters: unipolar voltage reduction; signal fractionation; broadened signal; reduced signal slew rate; reduced local myocardial impedance; increased phase angle; and increased pacing threshold.

37. (Previously presented) The transseptal apparatus of claim 36, wherein the distal end of the catheter is tapered, and the second electrode is spaced from the first electrode by a distance of between about 2 and about 4 mm.